

What are disposal wells & storage fields?

Disposal wells are used for disposal for a variety of businesses; including oil and natural gas production, municipal waste disposal, agricultural uses, storm water drainage, septic systems, geothermal wells, domestic wastewater disposal wells and a variety of industrial and manufacturing purposes. Disposal wells exist throughout the state in both karst regions and non-karst regions. In Michigan alone, there are over 10,000 disposal wells of different types.

Great Lakes states (Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin) have over 71,000 disposal wells and nationwide there are over 700,000 disposal wells.

Michigan is unique in that its geology allows for the storage of natural gas in depleted natural gas or oil fields, aquifers or salt caverns. Michigan has more natural gas storage than any other state. This storage allows for more efficient use of transmission pipelines that bring supply to Michigan utilities and helps stabilize prices. Michigan currently has 45 natural gas storage fields with about 675 bcf (billion cubic feet) of working natural gas storage capacity.

Energy security: Why are disposal wells and natural gas storage facilities important?

Public polling has shown that United States citizens are very interested in reducing our country's dependence on foreign oil from foreign countries. In order to do that and in order to provide the safe, abundant and economical source of natural gas that will help fuel Michigan's energy future, we must drill wells for natural gas and oil.

Disposal wells are an important part of the process of producing oil and natural gas, both in Michigan and nationwide. Not every natural gas or oil well needs a disposal well, but many of them do. Disposal wells cut down on truck traffic that is an alternative to carrying the waste produced from oil and gas processes, as well as providing a scientifically proven, safe means of disposal.

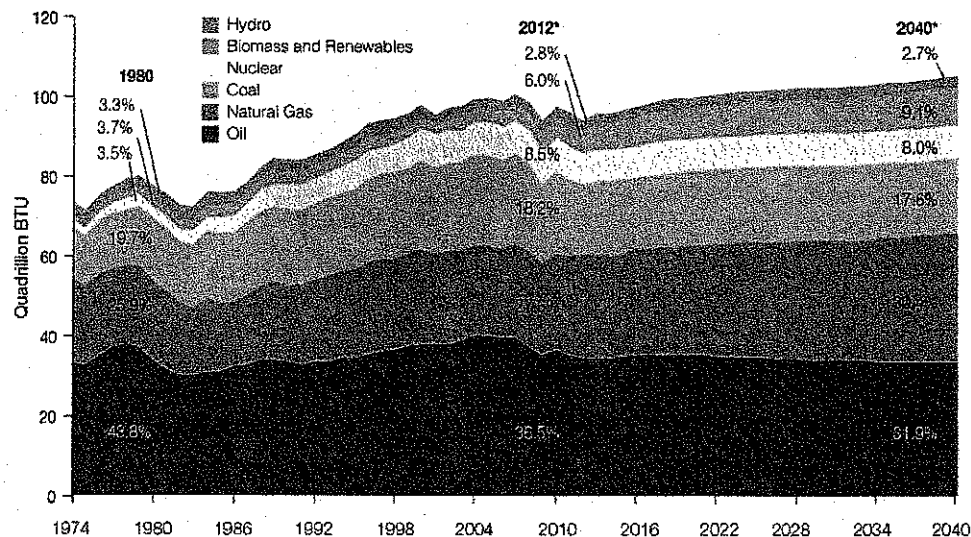
Michigan's abundant natural gas storage facilities allow Michigan to buy natural gas when prices are low and store it to use over the winter when use is high, benefiting local residents.

Over 80% of homes in Michigan are reliant on natural gas for heating and cooling, making natural gas particularly important to our state.

The U.S. Energy Information Administration has produced this recent graph showing projected overall energy source demand by sector. Natural gas and oil will continue to drive the United States.

Future U.S. Energy Demand

The U.S. will require 12 percent more energy in 2040 than in 2012.



*Excludes non-hydrogen municipal waste and net electricity imports. Source: EIA, Annual Energy Outlook 2014, variables A1 and A17.

Where are the current disposal wells located that are in areas of karst geology?

Maps vary on the location of possible karst features in Michigan. Known karst areas can include Presque Isle, Montmorency, Charlevoix, Otsego, Antrim, Monroe and Alpena. There are currently 384 active disposal wells in Presque Isle, Montmorency, Charlevoix, Otsego, Antrim, Monroe and Alpena. Monroe County historically had one disposal well for oil and gas that was permitted in 1984 and closed in 2004.

What is karst topography and why can't you find natural gas in it?

Karst geology is a landscape formed at the surface when soft rocks like limestone get dissolved by rain water. As it drains into fractures in the rock, the water begins to dissolve away the rock creating a network of passages. Over time, water flowing through the network continues to erode and enlarge the passages; this allows the plumbing system to transport increasingly larger amounts of water.

There is no oil or gas present in karst zones because the caverns and passages would not hold it. This is the same reason why you wouldn't dispose of liquids into karst. They would not stay. Instead you drill far below these areas into geology that will hold liquids. In many cases drilling occurs over 1200 feet below karst areas – this is a distance of 4½ football fields! As a well is drilled, thick concrete and steel casing will prevent fluid or gas from leaking into this zone.

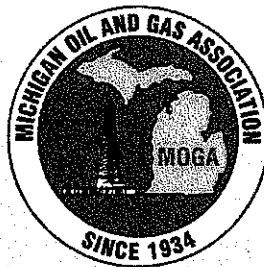
How do we keep water safe when using a disposal well?

Disposal wells for the oil and gas industry are regulated by both the Environmental Protection Agency (EPA) and the Michigan Department of Environmental Quality. This dual regulation ensures that the most stringent safeguards are part of any decision to grant a permit for a disposal well.

Since the modern era of oil and gas regulation (1980's) there have been no reported impacts from contamination of drinking well water or surface water from natural gas and oil activities.

The well construction requirements are designed specifically to seal off any freshwater zones or other sensitive features like karst zones from any contamination. In addition to the well construction, the DEQ and EPA require continuous monitoring and reporting of disposal pressures, rates and amounts of liquids. Any loss of pressure, which would signal a leak, requires immediate cessation of disposal.

These are just a few of the important rules and requirements that govern the operation of disposal wells for oil and gas.



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